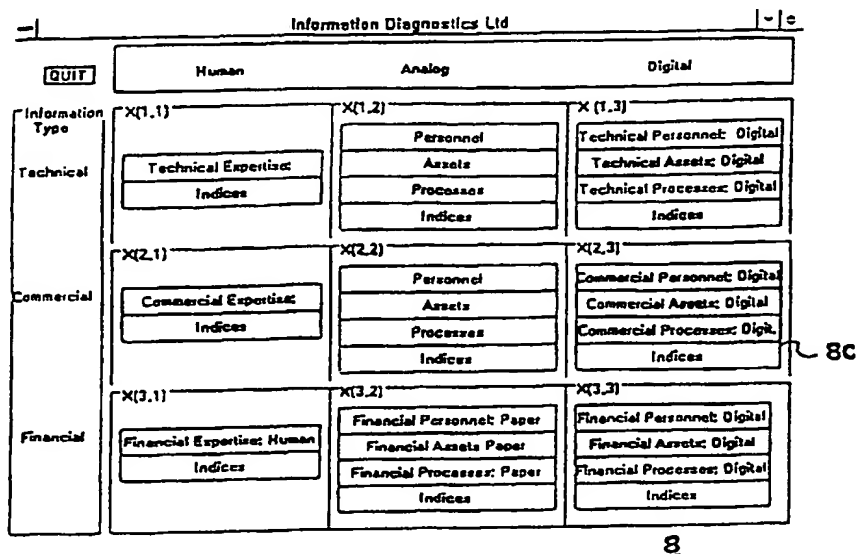




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G06F 17/60	A1	(11) International Publication Number: WO 98/38588 (43) International Publication Date: 3 September 1998 (03.09.98)
(21) International Application Number: PCT/GB98/00642 (22) International Filing Date: 2 March 1998 (02.03.98) (30) Priority Data: 9704187.5 28 February 1997 (28.02.97) GB (71)(72) Applicants and Inventors: MAYON-WHITE, William, Mark [GB/GB]; 36 Mountfield Road, London N3 3NE (GB). LESSER, Michael, John [GB/GB]; 52 Woodstock Road, London NW11 8QE (GB). DYER, Bernard, William [GB/GB]; 36 Watchet Lane, Holmer Green, High Wycombe, Bucks HP15 6UG (GB). BACKHOUSE, James [GB/GB]; 37 Clarendon Road, London E11 1BZ (GB). (74) Agent: COZENS, Paul, Dennis; Mathys & Squire, 100 Grays Inn Road, London WC1X 8AL (GB).		(81) Designated States: CA, JP, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: BUSINESS ANALYSIS TOOL AND METHOD



(57) Abstract

A matrix (8) is established for the business assets of a company and is divided into a 3 x 3 array of cells (8C) and distributed over human, analogue and digital categories of information and technical, commercial and financial aspects of the business. A user is guided by the program to enter the relevant business assets in the appropriate cells and the program then guides the user in compiling an inventory of all the business assets and valuing the assets in each category associated with a respective cell. Weighting factors are applied to all the crude values to take into account the scarcity of particular items of information, their security and the dependence on security of their value. A two-dimensional "footprint" of value against information type and business aspect results which can be compared with corresponding "footprints" of other companies in the sector to enable anomalies to be identified.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

BUSINESS ANALYSIS TOOL AND METHOD

The present invention relates to a tool for management of business assets (and particularly but not exclusively information assets), to a method of establishing an
5 inventory of business information assets and to a method of establishing a distribution of value of business information assets, and the total value of each class of information assets, and the total value of a business's information assets, as well as to a computer adapted for use in such methods.

10 The value of information is implicitly recognised by legislation such as data protection, copyright and patent laws, insider trading regulations and the like. However, there are no generally recognised methods for assessing the monetary value of information in widespread use.

15 Furthermore, the body of literature on information theory which stretches back some forty-five years does not include a generally accepted method for systematically reviewing and assessing the value of an organisation's information and data resources. Organisations imply in many different ways that information has a value, yet the financial value is rarely made explicit. When this is done, it is restricted to those
20 classes of information which are bought and sold, eg. share price information and credit ratings.

There is also a body of work associated with accounting standards, part of which is concerned with the value of intangibles and with the capitalisation of R & D
25 expenditure. The institutions responsible for accounting standards recognise the difficulties in valuing intangibles. In general, the value of intangibles and goodwill is treated as a residual element. However, this approach is increasingly regarded as unsatisfactory and ineffective.

30 An object of the present invention is to provide a management tool and a method which are more systematic, consistent, accurate and useful than those used in the prior art.

- 2 -

A further object of the present invention is to provide a tool and method to facilitate answering at least some of the following questions which are frequently addressed to practising managers:

- 5 1. What information assets are held by your company (a) in human memory, skill and experience, (b) on paper, and © captured and stored within the databases and algorithms of your computer systems?
2. Does your business strategy recognise and reflect the importance and value of
10 your information assets?
3. Is there a clear and accurate picture of the ownership of the information assets needed to operate your business? (and are you fully aware of your obligations to the owners of any third party information assets which you employ?)
15
4. Is your business strategy successfully aligned with your information systems strategy and does this reflect the value of the information assets managed through such systems?
- 20 5. Do your human resource systems and staff development programmes maintain the value of the information assets which are embodied in the skills and experience of your employees?
6. How do your information and knowledge management practices match up
25 against those of your industry sector?
7. Have you addressed the information "make" or "buy" decision across all your information assets and requirements?
- 30 8. Do your security, contingency and business continuity plans adequately protect the integrity and availability of your key information assets?

- 3 -

9. Are your analyses of the business value chain able to demonstrate how information assets add value to your products and services?

10. Do your management systems allow you to include valuations of your
5 information assets in your company reports in such a way that your shareholders, investors, and employees are able to assess the contribution of information to the business?

In one aspect, the present invention provides a tool for management of business assets
10 comprising means for establishing a matrix of information concerning business assets, rows and columns in the matrix each being associated with respective categories of such assets such that the cells define a discrete distribution in two or more dimensions of categories of such information, graphical user interface means including means for prompting a user to enter information about business assets of an appropriate category
15 in each cell, display means for displaying the matrix of information and processor means arranged to process the information in the matrix, wherein the nature of the information in different categories varies over one dimension of the matrix and the business aspect to which the information in different categories relates varies over another dimension of the matrix.

20

When the invention is used over a period of time, the business may, in addition build up a picture of changes in asset values over time.

By establishing, processing and displaying information in the form of a matrix as
25 aforesaid, information can be processed in a faster and more efficient way than has hitherto been possible.

It will be understood that the tool can be implemented purely in computer hardware, by the use of appropriate circuitry, or (more preferably) in a combination of computer
30 hardware and software.

Preferably, said different categories of the nature of the information include human

- 4 -

know-how and/or analogue information and/or digital information. By analogue information is meant information which is not represented digitally such as the information embodied in a die form of casting a specified shape for example, and that which is maintained in iconic form as writing or symbols on paper or other media.

- 5 Digital information could include any information stored digitally on eg. a computer or computer-readable medium. Human know-how could include the skills and capabilities of the workforce for example.

- 10 Preferably, the different categories of the business aspect to which the information relates include technical and/or commercial and/or financial aspects (preferably all three).

- 15 Preferably, cells in said matrix are selectable by a pointing device (such as a mouse for example) operable by the user and, when thus selected, cause windows to open on said display means which prompt the user to enter business assets of the appropriate category and relating to the appropriate business aspect in the corresponding cells.

- 20 Preferably, said cells in the matrix are sub-divided into different classes of business assets independently of said categories of nature of information and business aspect. For example, the cell containing technical analogue information could contain details of different processes and different machines. Such technical analogue information might, for example, be a technical memorandum describing the manufacture of a pharmaceutical product or an engineer's machined foam or plastic model.

- 25 Further preferred features of this aspect of the invention are defined in dependent claims to the above tool.

In another aspect, the invention provides a method of establishing an inventory of business information assets comprising the steps:

30

- I) establishing the information processing steps performed in the business;

- 5 -

- ii) establishing the information utilised in and generated by said information processing steps;
- iii) categorising the information of step ii) at least two-dimensionally according to a) the nature of the information and b) the business aspect to which the information relates;
- iv) establishing an inventory of items of information in each category of step iii);
- 10 v) assigning a value to the inventory of step iv) by applying a valuation to the items in each category of step iii).

Preferably, the categorising step is performed by means of a matrix as used in the first aspect of the invention.

15

- Preferably the valuation step v) is performed by applying a formula which includes a weighting factor having the effect of multiplying the value in each category by a factor of between zero and unity. The weighting factor can, for example, represent the scarcity or accessibility of the corresponding asset. For example, if the relevant
- 20 business asset is a die of which only one is possessed by the company and further dies of that type are difficult to obtain or can be obtained only after a long delay or can be obtained only in uneconomically large quantities then the weighting factor will be relatively high. In the financial sector, an equation or a computer program supplied by an external analyst may be assigned a higher weighting value if the company's
- 25 contract with the analyst only allows limited use of the formula or program - eg. once a month.

- In a preferred embodiment the above valuation step v) is performed by applying a formula and which includes a security weighting factor having an exponent, the
- 30 security weighting factor having the effect of multiplying the assigned value by a factor dependent on the security of the associated business asset, the exponent having the effect of multiplying said factor by an amount dependent on the degree of

- 6 -

dependence of the value on the security of said associated business asset. For example financially sensitive information which would drastically affect a company's share price if generally known would have a high value of the exponent.

- 5 Preferably, all business information assets are divided into one of the three classes: human know-how, analogue information and digital information and all the business aspects are divided into one of the three classes: technical, commercial and financial, although of course other classes may alternatively or additionally be used.
- 10 It is recognised that at least some items are difficult to value and may not be capable of being valued objectively. In order to overcome this technical problem in a preferred embodiment, at least some items are valued subjectively by:
 - a) ranking them in order of value with comparable items of which at least one item,
15 and preferably several items, has or have a known or assignable value;
 - b) establishing a normalised valuation scale from the ranked items of step a), and
 - c) deriving the unknown value from the known or assigned value and the normalised
20 valuation scale.

For example, if item C were considered to have a value twice that of item D and items A and B were both considered to have a value twice that of item C then the values on an arbitrary percentage scale of A, B, C and D would be 100, 100, 50 and 25. If item
25 A could be assigned a value of say £5,000 either subjectively or by reference to some market value then items C and D could be valued at £2,500 and £1,250 respectively.

Since it is recognised in accordance with a preferred feature of the invention that the
30 valuation of an information asset can be affected by local factors such as scarcity and security, the above valuation step v) is preferably performed by applying a formula which includes a weighting factor having the effect of multiplying the value in each

- 7 -

category by a factor of between zero and unity. Preferably the above valuation step is performed by applying a formula which includes a security weighting factor having an exponent, the security weighting factor having the effect of multiplying the assigned value by a factor dependent on the security of the associated business asset,

5 the exponent having the effect of multiplying said factor by an amount dependent on the degree of dependence of the value on the security of said associated business asset.

The invention also provides a computer program to guide a user through at least steps I) to iv) of the above method by means of a graphical user interface.

10

In a further aspect, the invention provides a method of establishing a distribution of value of business information assets comprising the steps:

I) establishing the information utilised in the business;

15

ii) categorising the information of step I) at least two-dimensionally according to a) the nature of the information and b) the business aspect to which the information relates;

20 iii) assigning a tentative value to the information in each category by a first method;

iv) assigning a tentative value to the information in each category by a second method, and

25 v) arriving at a distribution of value by constructing a distribution between the distribution envelopes of steps iii) and iv).

The above method is useful in establishing a distribution or "footprint", which is a unique identifier, of business information assets which can be compared with the

30 corresponding distribution or "footprint" of other companies in the same sector. The resulting comparison is useful in financial analysis, management consultancy, planning mergers and acquisitions, and the like.

- 8 -

The valuations of steps iii) and iv) above can be selected from valuations based on:

- I) external market value,
- 5 ii) value based on attribution to costs and contribution to profit, and
- iii) subjective perception of value, for example.

10 The invention also provides a computer programmed to prompt a user through the steps of the above method by a graphical user interface. Optionally, the computer can be arranged to modify the valuations by applying formulae containing the weighting factors described above.

15 Preferably the information is classified by means of a matrix as used in the first aspects of the invention.

Preferred embodiments of the invention are described below by way of example only with reference to Figures 1 to 6, wherein:

20 Figure 1 is a schematic perspective view of a computer programmed to act as a tool in accordance with the present invention;

Figure 2 is a screen dump showing one layer of a matrix established by the programmed computer of Figure 1;

25

Figure 3 is a three-dimensional representation of the above matrix;

Figure 4 is a screen dump showing a screen generated by the computer of Figure 1 in response to clicking on one of the boxes in the screen dump of Figure 2;

30

Figure 5 is a flow diagram showing the first, information mapping phase of a method in accordance with the second aspect of the invention;

- 9 -

Figure 5b) is a flow diagram showing the second, information valuation phase of an embodiment of the above method;

Figure 5c) is a flow diagram showing the third, information evaluation phase of the
5 above embodiment; and

Figure 6 is a flow diagram illustrating the computation of the value of the assets of a business using the programmed computer of Figure 1.

10 Referring to Figure 1, the computer 1 (which is preferably a Pentium® PC running the Windows® operating system) is provided with a conventional keyboard 2 and mouse 3 which supply input signals to a microprocessor 5 having data buses connecting it to ROM 6 and RAM 7. The microprocessor is also linked in a conventional manner to a hard disk 11 on which a program for use with the invention is stored. Additionally,
15 the microprocessor is coupled in a conventional manner to a floppy disk drive 10 and has an output to a conventional display 9. An additional output (not shown) links the computer to a printer 4. It will be appreciated by persons skilled in the art that the above is a simplified description of a general purpose PC. In accordance with one aspect of the present invention, a program stored on hard disk 11 is arranged to load
20 a matrix 8 into RAM 7 and this matrix will now be described with reference to Figures 2 and 3.

From henceforth, it will be understood that references (in whatever form) to information, its use, processing or storage imply, where the context so allows, that the
25 information is handled by the computer as electrical signals which are, as appropriate, stored in computer memory, processed by the microprocessor 5 and output as visual signals on the display 9.

Referring to Figure 3, the matrix is three-dimensional and contains eg. three layers
30 (corresponding to periods P1, P2 and P3) of a rectangular 3 x 3 array of information cells 8c (Figure 2) in the array being divided in the horizontal direction into the three categories of human, analogue and digital business assets and being divided vertically

- 10 -

into the three categories of technical, commercial and financial business aspects.

The user selects an appropriate layer of matrix 8 (Figure 2) and is presented with a screen as shown in Figure 2 wherein each of the nine cells 8c of the matrix is divided
5 into different classes of assets. For example, the commercial analogue information cell (identified as X (2,2)) is divided into personnel, assets, processes and indices (weighting factors). In this case the value of staff records, statements of qualification and so on are entered and computed from the "hot button" labelled "personnel".

10 The program loaded from hard disk 11 presents each of the above sub-divisions of the cells 8c as a "hot button" which when clicked on using the mouse 3 or other pointing device leads the user to a further screen as shown in Figure 4.

The particular screen shown in Figure 4 is displayed in response to clicking on the
15 "Personnel" hot button in Cell X(1,2). For example, an employment agent supplying skilled engineers on contract to an offshore oil production platform would need to hold records of the technical qualifications for his contract staff.

The screen represented in Figure 4 concerns information recorded on paper eg. designs
20 and drawings and has a box 12 in which the user enters the number of pages of a given document and a box 13 in which the user enters the identity of the repository of the relevant design or other document. The repository can be a class of documents such as documents relating to engine design for example. When the user is satisfied that he has completed boxes 12 and 13 correctly he clicks on boxes 14 and 15 respectively
25 to enter the respective data and the program loaded from hard disk 11 then performs its functions. Firstly, it calls up a program which calculates the value of the asset (in this case a design document relating to engine design) by means of questions presented on screen to the user who enters the required information. In some cases this may include a subjective valuation in accordance with the third aspect of the
30 invention. The information entered by the user is then processed by the called up program to arrive at a crude valuation x.

- 11 -

The user then calls up a program for calculating a local weight w by clicking on the "local weight" hot button 16. The called up program then enters into a dialogue with the user on the screen to enable an appropriate local weight to be calculated for the relevant data which represents the scarcity value of the data. The user then clicks on
5 a "security index" hot button 17 which similarly calls up a program which enters into a dialogue on screen with the user to enable a security index s^a to be calculated. The value of the local weight w and the value of the security index s^a are recorded and displayed in boxes 18 and 19 respectively and the resulting weighted value is determined by the program and displayed in box 25 alongside the information already
10 entered in boxes 12 and 13 which is repeated in boxes 21 and 23 respectively.

Other hot buttons may be provided, via which access can for instance be gained to proprietary software. For example links may be made to software such as HIVIEW (London School of Economics), @RISK (US) , WITNESS (Lanner Group), the
15 Microsoft Excel spreadsheet tool, a database engine such as the Microsoft Access tool, and COPIT (UK software associated with the British Standards Institution code of practice on security management).

The above process is then repeated for a further item and the results displayed in a
20 similar manner in box 26 adjacent to the repository name in box 22 and the number of pages in box 24 respectively. The processor is then repeated for all the items falling within the (1,2) cell 8c and the sub-total of the value of all the company's assets in that category is displayed in box 27.

25 A similar procedure is then carried out for the other cells 8c in the matrix and for the other layers of such cells relating to different periods. In some cases, the values appropriate to one period may be calculated from the values determined in respect of another period from a known relationship governing eg. the depreciation of value of various categories of information over time.

30

Mathematically, the weighting may be represented as follows (in the following series the terms "I" and "j" are omitted to prevent confusion with their previous use):

Let $X = [X_{ij}]$ be an array with $X_{ij} \in \mathbb{R}$

$$\text{Let } V = \sum_{i=1}^m \sum_{j=1}^n X_{ij} \cdot W_{ij} \cdot S_{ij}^{\alpha_{ij}}$$

where $0 \leq S \leq 1$ is the security index, α is the local weight on S and where W_{ij} is the local weight on X , and V is the value.

Let $X_{ij} = f(a, b, c, \dots)$

5 where the terms are attributes of information value:

a is market price: sell price, buy price, spread

b is replacement cost

c is maintenance cost

d is cost of creation

10 e is information turnover: timeliness and half-life

f is accuracy: verifiability, completeness, date, evidential value

g is availability: criticality and risk in business process

h is security: protection cost, data protection, privacy

k is ownership: originality, designs, patents, brands, IP

15

The array X represents a layer of the above-described matrix 8 and x_{ij} represents the sum of the unweighted values of the assets in the cell 8c of the i th row and j th column. In this case $m = 3$ and $n = 3$. W_{ij} is the local weighting value for information in the i th row and j th column, S is the security index appropriate to the i th row and j th column and the exponent α_{ij} modifies the value of S . α can have any positive value. As noted above, α represents the criticality of the security of the information to its value.

25 In general, the value of the local weighting index is a function of (eg. a linear

- 13 -

function) of the values represented by the parameters a to k, some or all of which may need to be determined subjectively in accordance with the third aspect of the invention.

- 5 Figures 5a) to 5c) show in flow diagram form a method of establishing an inventory of business information assets in accordance with the second aspects of the invention, this procedure preferably including the above-described establishment of the matrix and summing the value sub-totals derived for each cell 8C.
- 10 The analysis is opened (step 28) and the scope is determined in step 29. For example, the analysis may be applied at a relatively crude level at board level, or may be applied (at a greater level of detail) to a business unit or may be applied (comprehensively, in still greater detail) to the entire enterprise represented by the company. The valuation objectives are then established (step 30) before mapping
- 15 all the processes and information assets utilised in the company. Optionally, a test for completeness (step 30a) may be applied at this stage and if it is failed then the steps 29 and 30 can be repeated until the test is satisfied. After the processes and information assets have been mapped in step 31 a test for completeness (step 32) is applied in any event and if it is failed steps 29 to 31 are repeated. Otherwise the
- 20 analysis proceeds to the output to phase 2 (Figure 5b)). It should be noted that all of the above processes involve discussion with the company's personnel but may additionally involve a dialogue guided by a computer program.

- In the next taxonomy step (34) the information assets are sorted and grouped, which
- 25 essentially corresponds to generating the appropriate sub-divisions in each of these cells 8C of matrix 8 as illustrated in Figure 2. An initial inventory of the information asset is then made (step 35) in order to ensure that nothing has been omitted and optionally a test for completeness (step 35a) is applied at this point. If it is failed then steps 34 and 35 are repeated until it is satisfied and the analysis can
- 30 proceed to step 36, the valuation of the assets. This is carried out under the guidance of the computer program as described above with reference to Figures 1

- 14 -

to 4.

Again, appropriate checks for completeness are performed (step 37). If these are failed then steps 34 to 36 are repeated and if these are passed then the analysis
5 proceeds to the information evaluation phase (step 38) as illustrated in Figure 5c).

The processes illustrated in Figure 5c) involve the evaluation of the "information footprint"(Step 40), ie. the two-dimensional distribution of value against the nature (human/analogue/digital) of the information and business aspects
10 (technical/commercial/financial), followed by an examination of the contribution to the business made by each of the categories corresponding to the various cells 8C (step 41). It may turn out for example that a large store of value in a particular class of asset is not being utilised efficiently and this may lead to discussions as to whether to sell the asset or use it in a different manner.

15

A security assessment (step 42) is then carried out in order to assess the risks associated with the various categories of information asset and a report can be presented to the company (step 43). The company can then consider the outcome (step 44) and either close the analysis (step 46) or repeat the analysis in more detail
20 or in respect of another part of the business (step 45). In other words the analysis could revert to step 29 and could be applied (say to a different business unit).

Figure 6 now summarises the information processing performed with the aid of the computer 1 of Figure 1 and involves an initial step of selecting the type and form
25 for information (step 47) by clicking on the appropriate sub-division of the appropriate cell 8C as shown in Figure 2 resulting in the opening of a data entry screen (step 48), a typical entry screen being shown in Figure 4 followed by selecting a field (12 or 13 - Figure 4) and entering the data (step 49) and repeating for every item of data appropriate to the selected cell (step 50). This procedure is
30 then repeated for all the other cells 8C (step 51) and the data entry screen is closed (step 52) followed by applying the appropriate weighting factors w and s^a to enable

- 15 -

the subtitles of value for each cell to be calculated. An output screen is then selected (step 54), the form of output is then selected (step 55) and the output is then saved to a file and/or printed and/or displayed on screen (step 56).

- 5 It will be seen that the methods and tool of the invention enable a thorough analysis of a company's assets (particularly its information assets) to be performed in a systematic manner, which will aid in the optimisation of industrial output and should enable other technical problems to be identified and overcome.
- 10 The accompanying annex is hereby incorporated in its entirety by reference.

It will be understood that the present invention has been described above purely by way of example, and modifications of detail can be made within the scope of the invention.

15

Each feature disclosed in the description, and (where appropriate) the claims and drawings may be provided independently or in any appropriate combination.

- 16 -

Claims

1. A tool for management of business assets comprising means for establishing a matrix of information concerning business assets, rows and columns in the matrix
5 each being associated with respective categories of such assets such that the cells define a discrete distribution in two or more dimensions of categories of such information, graphical user interface means including means for prompting a user to enter information about business assets of an appropriate category in each cell, display means for displaying the matrix of information and processor means
10 arranged to process the information in the matrix, wherein the nature of the information in different categories varies over one dimension of the matrix and the business aspect to which the information in different categories relates varies over another dimension of the matrix.
- 15 2. A tool as claimed in claim 1 wherein said different categories of the nature of the information include human know-how and/or analogue information and/or digital information.
- 20 3. A tool as claimed in claim 1 or claim 2 wherein said different categories of the business aspect to which the information relates include technical and/or commercial and/or financial aspects.
- 25 4. A tool as claimed in claim 3 as dependent on claim 2 wherein said matrix divides all information assets into one of the three categories: human know-how, analogue information and digital information and divides all the business aspects into one of the three categories: technical, commercial and financial.
- 30 5. A tool as claimed in any preceding claim wherein cells in said matrix are selectable by a pointing device operable by the user and, when thus selected, cause windows to open on said display means which prompt the user to enter business assets of the appropriate category and relating to the appropriate business aspect in

- 17 -

the corresponding cells.

6. A tool as claimed in any preceding claim wherein said cells in the matrix are subdivided into different classes of business assets independently of said categories
5 of nature of information and business aspect.

7. A tool as claimed in claim 6 wherein the subdivisions of said cells are variable by the user.

10 8. A tool as claimed in any preceding claim wherein cells in the matrix are associated with respective formulae for deriving one or more parameters deducible from said business assets and said processing means is arranged to calculate said one or more parameters from the information stored in the cells.

15 9. A tool as claimed in claim 8 wherein said one or more parameters include an extensive parameter which is determined by the sum of the contributions from two or more of said cells.

10. A tool as claimed in claim 9 wherein said extensive parameter is value.

20

11. A tool as claimed in claim 9 or claim 10 comprising means for associating cells in said matrix with an expression for establishing the value of said parameter in respect of each cell, the expression including a weighting factor to be applied to an extensive variable whose entry is prompted by the tool, said weighting factor having
25 the effect of multiplying said extensive variable by a factor of between zero and unity.

12. A tool as claimed in any of claims 9 to 11 comprising means for associating cells in said matrix with an expression for establishing the value of said parameter
30 in respect of each cell, the expression including a security weighting factor having

- 18 -

an exponent, the security weighting factor having the effect of multiplying said extensive variable by a factor dependent on the security of an associated business asset, the exponent having the effect of multiplying said factor by an amount dependent on the degree of dependence of said parameter on the security of said associated business asset.

13. A tool as claimed in any preceding claim wherein the dimensionality of said matrix is at least three and said matrix has at least two layers of said cells, the respective layers relating to different time frames.

10

14. A tool as claimed in claim 13 wherein said processing means is arranged to populate the cells in one layer with information derived from calculations performed on information in another layer.

15. A method of establishing an inventory of business information assets comprising the steps:

i) establishing the information processing steps performed in the business;

ii) establishing the information utilised in and generated by said information processing steps;

iii) categorising the information of step ii) at least two-dimensionally according to a) the nature of the information and b) the business aspect to which the information

relates;

iv) establishing an inventory of items of information in each category of step iii);

v) assigning a value to the inventory of step iv) by applying a valuation to the items in each category of step iii).

- 19 -

16. A method as claimed in claim 15 wherein said valuation step v) is performed by applying a formula which includes a weighting factor having the effect of multiplying the value in each category by a factor of between zero and unity.

5 17. A method as claimed in claim 15 or claim 16 wherein said valuation step v) is performed by applying a formula which includes a security weighting factor having an exponent, the security weighting factor having the effect of multiplying the assigned value by a factor dependent on the security of the associated business asset, the exponent having the effect of multiplying said factor by an amount dependent on
10 the degree of dependence of the value on the security of said associated business asset.

18. A method as claimed in any of claims 15 to 17 wherein all business information assets are divided into one of the three classes: human know-how, analogue
15 information and digital information and all the business aspects are divided into one of the three classes: technical, commercial and financial.

19. A method as claimed in any of claims 15 to 18 wherein at least some items are valued subjectively by:

20

a) ranking them in order of value with comparable items of which at least one item has a known or assignable value;

b) establishing a normalised valuation scale from the ranked items of step a), and

25

c) deriving the unknown value from the known or assigned value and the normalised valuation scale.

20. A method as claimed in any of claims 15 to 19 when performed by a tool as
30 claimed in any of claims 1 to 14.

- 20 -

21. A computer programmed to guide a user through at least steps I) to iv) of the method of claim 15 by means of a graphical user interface.

22. A computer as claimed in claim 21 which is arranged to perform step v) of the
5 method of claim 15 by applying a formula as defined in claim 16 or claim 17.

23. A method of establishing a distribution of value of business information assets comprising the steps:

10 I) establishing the information utilised in the business;

ii) categorising the information of step I) at least two-dimensionally according to a) the nature of the information and b) the business aspect to which the information relates;

15

iii) assigning a tentative value to the information in each category by a first method;

iv) assigning a tentative value to the information in each category by a second method, and

20

v) arriving at a distribution of value by constructing a distribution between the distribution envelopes of steps iii) and iv).

24. A method as claimed in claim 23 wherein the valuations of steps i ii) and iv) are
25 selected from valuations based on:

I) external market value,

ii) value based on attribution to costs and contribution to profit, and

- 21 -

iii) subjective perception of value.

25. A computer programmed to prompt a user through the steps of the method of claim 23 or claim 24 by a graphical user interface.

5

26. A computer as claimed in claim 25 which is arranged to modify the valuations by applying a formula as defined in claim 15 and/or claim 16.

27. A computer as claimed in claim 25 or claim 26 wherein the information is
10 classified by means of a matrix as defined in any of claims 1 to 4.

28. A computer when programmed to perform any of the steps of 15 to 20 or 23 and 24.

15 29. A footprint of business information assets obtained using the method of any of Claims 15 to 19.

30. A business analysis tool or method substantially as described herein above with reference to the accompanying drawings.

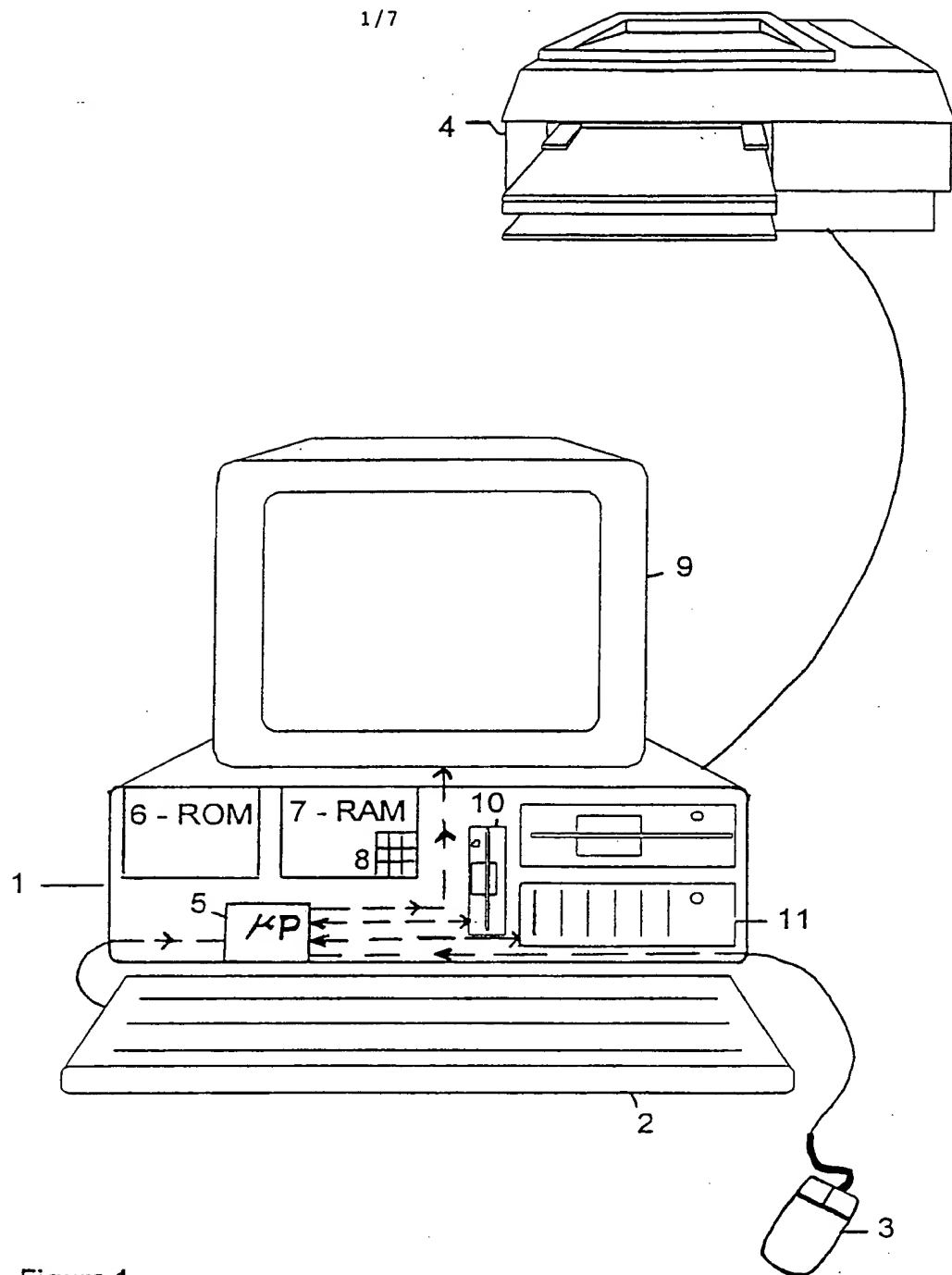


Figure 1.

Figure 2

2/7

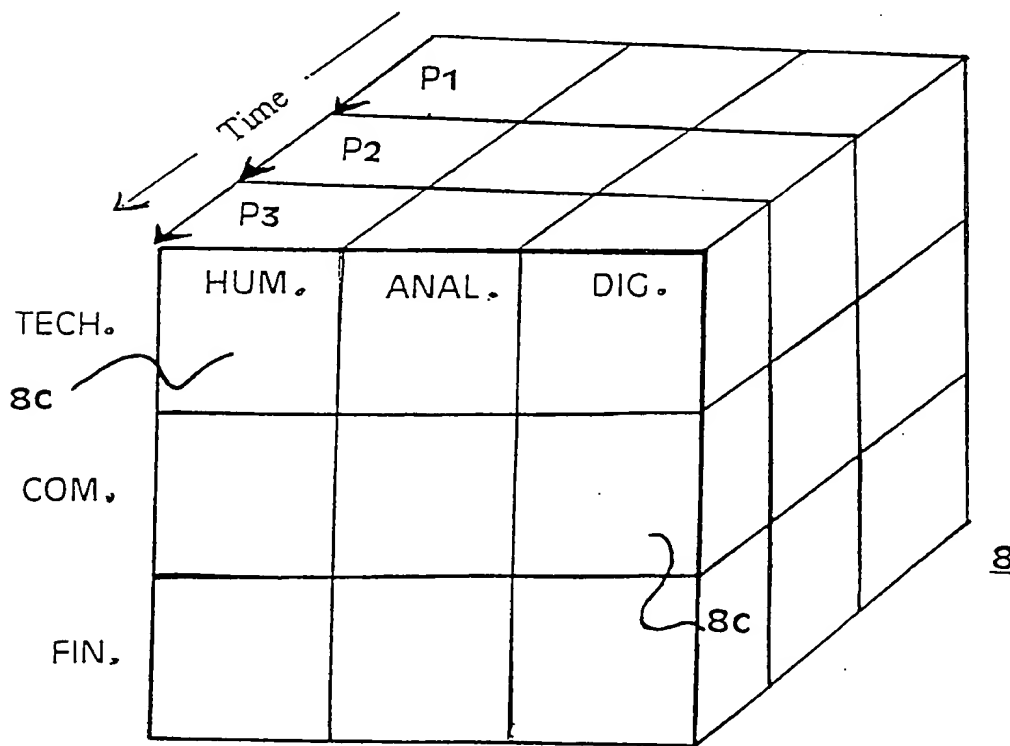
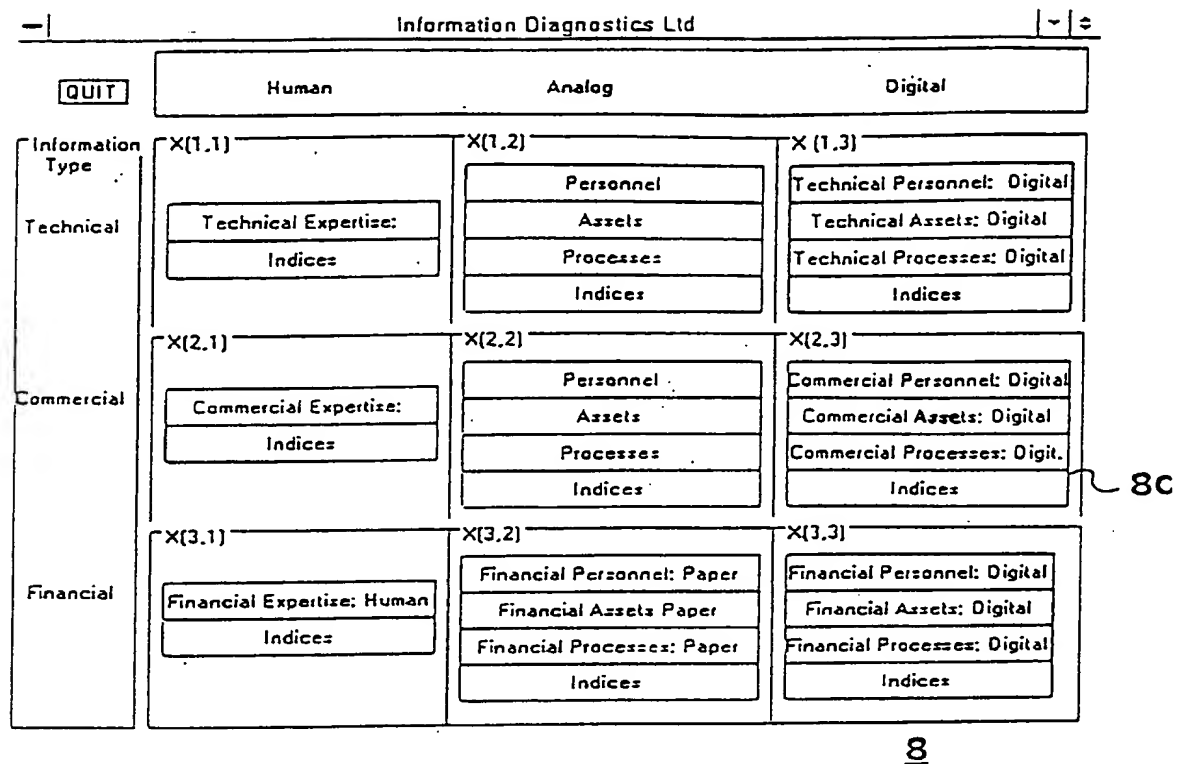
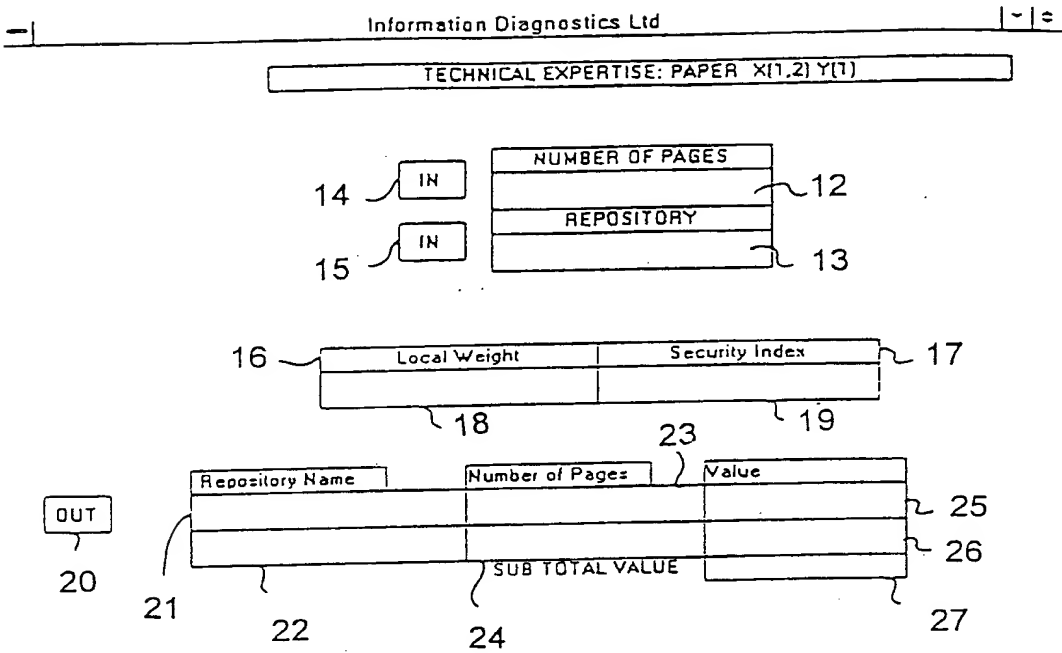


Figure 3

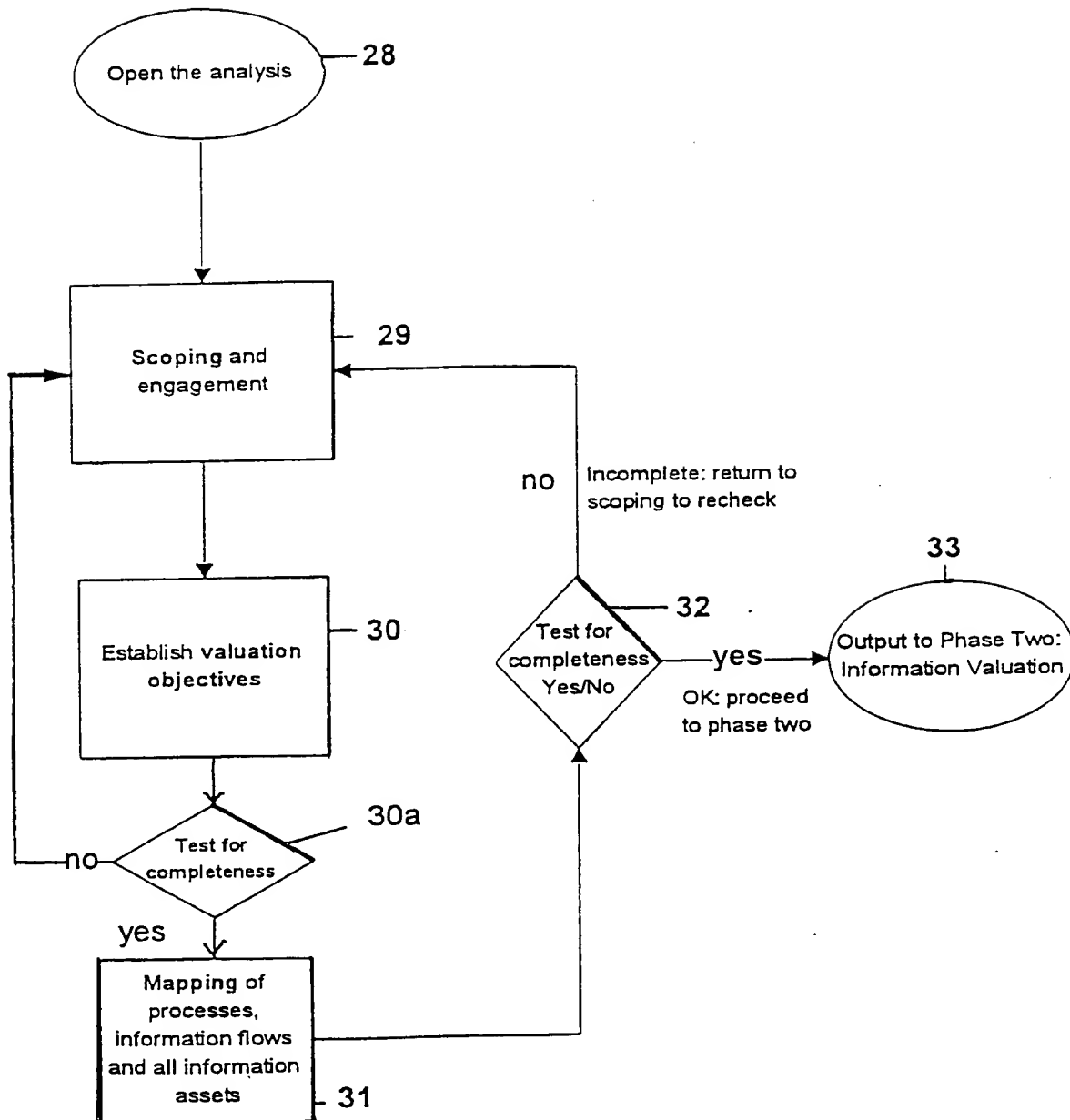
Figure 4

3/7



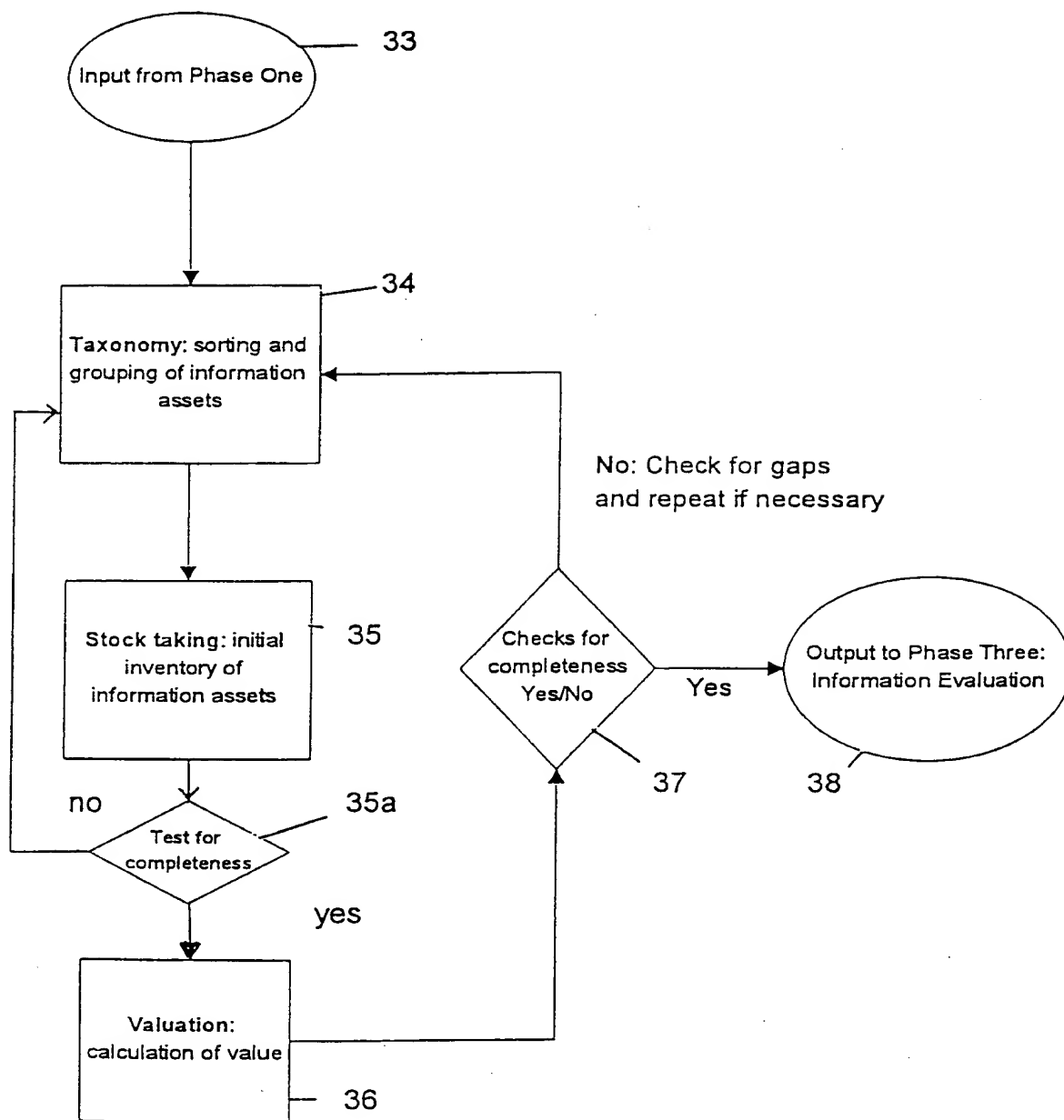
4/7

Figure 5a.



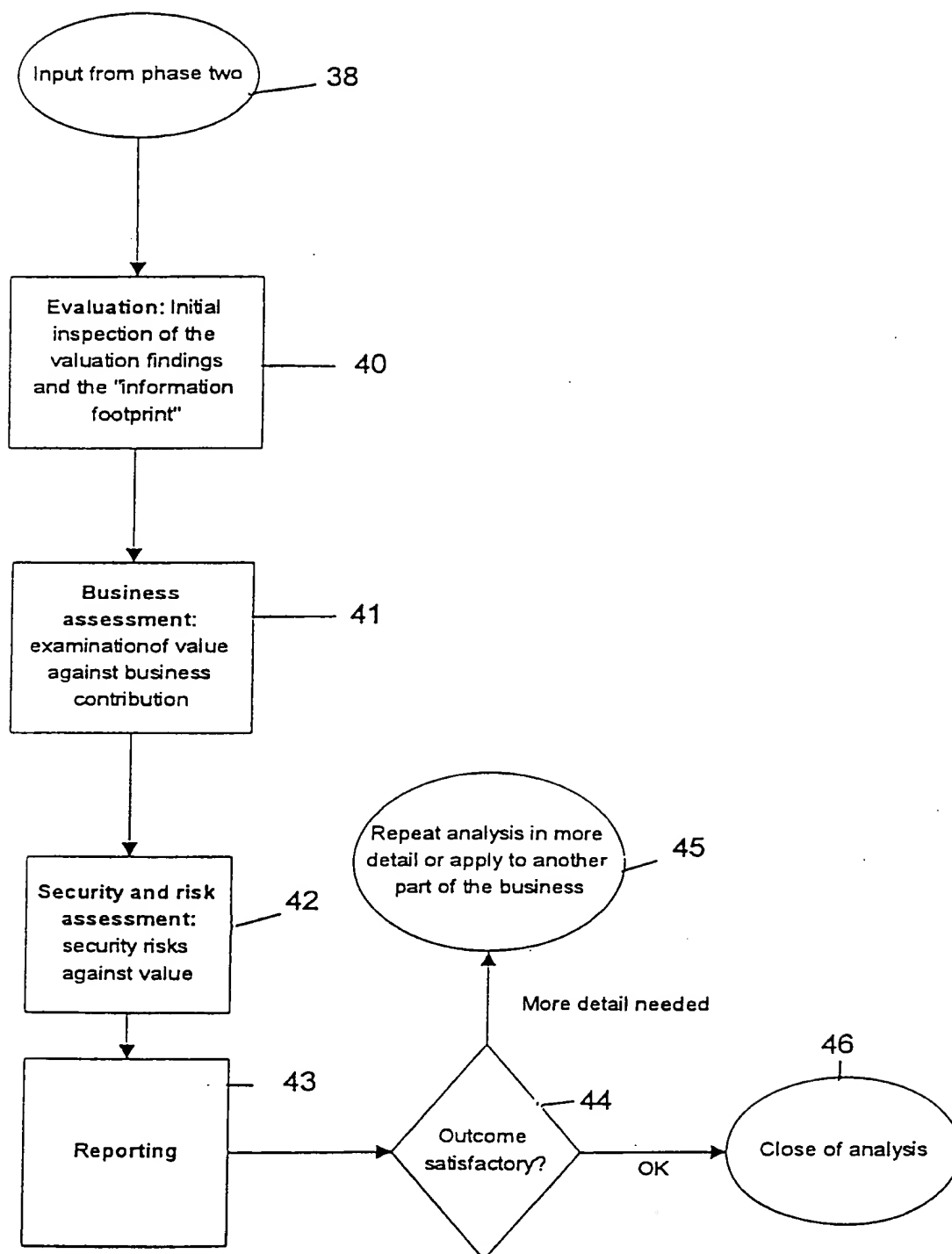
5/7

Figure 5b.



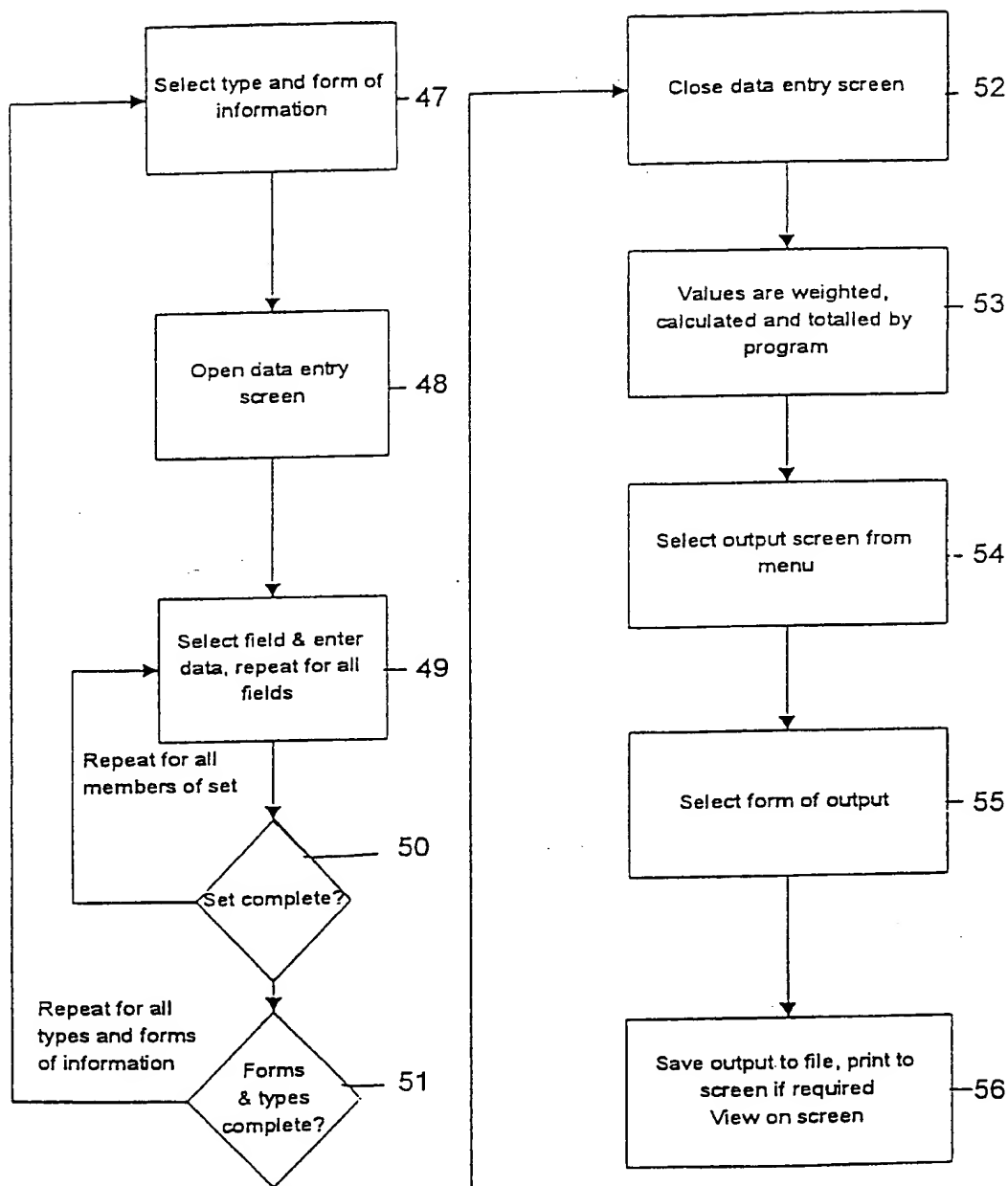
6/7

Figure 5c.



7/7

Figure 6:



INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 98/00642

A. CLASSIFICATION OF SUBJECT MATTER IPC 6 G06F17/60		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 6 G06F		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 365 425 A (PALMER ROBERT J ET AL) 15 November 1994 see abstract; claims 1,2; figure 1 see column 2, line 50 - line 61 see column 4, line 25 - line 44 ---	1-30
X	EP 0 587 290 A (TEKNEKRON INFOSWITCH CORP) 16 March 1994 see abstract; claims 1,6,8 see page 3, line 1 - page 4, line 7 see page 5, line 12 - line 44 ---	1-30
A	US 5 359 724 A (EARLE ROBERT J) 25 October 1994 see abstract; claim 1; figures 3,4 see column 5, line 16 - line 39 --- <div style="text-align: center;">-/--</div>	1,15,23,30
<div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex. </div>		
<div style="display: flex;"> <div style="flex: 1;"> <p>* Special categories of cited documents :</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="flex: 1;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p> </div> </div>		
Date of the actual completion of the international search	Date of mailing of the international search report	
24 June 1998	01/07/1998	
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Suendermann, R	

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB 98/00642

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 572 644 A (LIAW WEIKUO ET AL) 5 November 1996 see abstract; claim 1; figures 2-4 -----	1, 15, 23, 30

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte. l. Application No

PCT/GB 98/00642

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5365425 A	15-11-1994	NONE	
EP 0587290 A	16-03-1994	AU 4433693 A US 5500795 A US 5684964 A	03-02-1994 19-03-1996 04-11-1997
US 5359724 A	25-10-1994	AU 3971593 A EP 0635149 A WO 9320512 A	08-11-1993 25-01-1995 14-10-1993
US 5572644 A	05-11-1996	US 5416895 A CA 2092506 A EP 0569133 A JP 6139261 A US 5502805 A US 5623591 A US 5463724 A US 5590259 A US 5664127 A	16-05-1995 09-10-1993 10-11-1993 20-05-1994 26-03-1996 22-04-1997 31-10-1995 31-12-1996 02-09-1997

This Page Blank (uspto)